1. A reconfigurable frequency selective surface (FSS) comprising:

a plurality of conducting patches supported on a first surface of a dielectric material; and

a plurality of switches, each switch electrically interconnecting at least two of the plurality of conducting patches when the switch is selected,

wherein a first ensemble of switches is selectable so as to provide a first configuration of electrically interconnected conducting patches, and

a second ensemble of switches is selectable so as to provide a second configuration of electrically interconnected conducting patches.

2. The reconfigurable FSS of claim 1, wherein the first configuration of electrically interconnected conducting patches provides a first resonance frequency, and

the second configuration of electrically interconnected conducting patches provides a second resonance frequency.

3. The reconfigurable FSS of claim 1, wherein the first configuration of electrically interconnected conducting patches comprises a repeated unit cell pattern of electrically interconnected conducting patches.

4. The reconfigurable FSS of claim 3, wherein the first configuration of electrically interconnected conducting patches comprises a two-dimensional array of unit cell patterns of electrically interconnected conducting patches.

5. The reconfigurable FSS of claim 1, wherein the plurality of conducting patches is disposed in a square or rectangular grid pattern on the first surface of the dielectric material.

6. The reconfigurable FSS of claim 1, wherein each conducting patch has a square or rectangular shape.

7. The reconfigurable FSS of claim 1, wherein the plurality of conducting patches is arranged in a plurality of fractal arrays.

8. The reconfigurable FSS of claim 1, wherein a second surface of the dielectric material supports a conducting sheet, wherein the first configuration provides an artificial magnetic conductor having a first resonance frequency.

9. A reconfigurable frequency selective surface (FSS) comprising a plurality of conducting patches, the conducting patches being supported on a non-conducting surface,

the conducting patches being selectively electrically interconnected in an electrical interconnection configuration,

wherein a resonance frequency of the frequency selective surface can be adjusted through a modification of the electrical interconnection configuration.

10. The reconfigurable FSS of claim 9, wherein the FSS provides a first resonance frequency corresponding to a first electrical interconnection configuration, and a second resonance frequency corresponding to a second electrical interconnection configuration,

wherein the first electrical interconnection configuration and the second electrical interconnection configuration are electrically selectable.

11. The reconfigurable FSS of claim 10, wherein the first resonance frequency is an integer multiple of the second resonance frequency.

12. The reconfigurable FSS of claim 9, wherein the non-conducting surface is a first surface of a dielectric layer.

13. The reconfigurable FSS of claim 12, wherein a second surface of the dielectric layer supports an electrically conductive layer.

14. The reconfigurable FSS of claim 13, wherein at least one resonance frequency of the frequency selective surface corresponds to behavior as an artificial magnetic conductor.

15. The reconfigurable FSS of claim 9, wherein the modification of the electrical interconnection configuration is achieved by providing electrical signals to an array of switches.

16. An electromagnetic reflector including the reconfigurable FSS of claim 9.

17. An electromagnetic absorber including the reconfigurable FSS of claim 9.

18. An antenna system including the reconfigurable FSS of claim 9.

19. An artificial magnetic conductor (AMC), the AMC comprising:

a dielectric material having a first surface and a second surface;

an electrically conducting layer substantially adjacent to the first surface of the dielectric material; and

a plurality of electrically conducting patches supported by the second surface of the dielectric material;

wherein the electrically conducting patches have an electrical interconnection configuration,

the electrical interconnection configuration being reconfigurable so as to change a resonance frequency of the reconfigurable AMC.

20. The AMC of claim 19, wherein the electrical interconnection configuration is controlled by a plurality of electrical switches.

21. The AMC of claim 20, wherein the electrical switches comprise transistors.

22. The AMC of claim 20, wherein the electrical switches comprise resonant circuits.

23. The AMC of claim 19, wherein the interconnection configuration comprises a repeated pattern of unit cell interconnection configurations.

24. The AMC of claim 19, wherein the interconnection configuration is reconfigurable using electrical signals.

25. The AMC of claim 19, wherein the interconnection configuration for incident electromagnetic radiation is reconfigurable through a change in the frequency of the incident electromagnetic radiation.

27. An artificial magnetic conductor (AMC), the AMC comprising:

a dielectric material having a first surface and a second surface;

an electrically conducting layer substantially adjacent to the first surface of the dielectric material; and

a plurality of electrically conducting patterns supported by the second surface of the dielectric material;

the AMC comprising a plurality of regions, the resonance frequency of at least one region being independently adjustable.

28. The AMC of claim 27, wherein the resonance frequency of each region is independently adjustable.

29. The AMC of claim 27, wherein the electrically conducting patterns within the region each comprise a plurality of electrically conducting patches, the resonance frequency of the region being adjusted by changing the electrical interconnection configuration of the plurality of electrically conducting patches.

30. The AMC of claim 27, wherein the resonance frequency of the region is adjusted by modifying the dielectric constant of a tunable dielectric.

31. The AMC of claim 30, wherein the tunable dielectric is part of the dielectric material.